REMARKS

Reconsideration and allowance of the above-referenced application are respectfully requested.

I. STATUS OF THE CLAIMS

Claim 1 is cancelled herein without prejudice or disclaimer.

Claims 2, 3, 14, 15, and 16 are amended herein and new claims 43 and 44 are added.

In view of the above, it is respectfully submitted that claims 1-44 are currently pending and under consideration in the present application, claims 12, 13, and 17-42 of which are withdrawn from consideration.

II. REJECTION OF CLAIMS 1-11 AND 14-16 UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

Claims 1-11 and 14-16 are rejected under 35 U.S.C. § 112, second paragraph. Claim 1 is cancelled herein.

The Examiner also rejects claim 11 for using terminology such as "state of the light." Claim 11, however, does not recite "state of the light" anywhere in the claim.

In view of the above, it is respectfully submitted that the rejection is overcome.

III. REJECTION OF CLAIMS 1-11 AND 14-16 UNDER 35 U.S.C. § 102(E) AS BEING ANTICIPATED BY SOBE ET AL. (US 2003/0117694)

According to claim 2 (as amended herein) of the present invention, "said transmission station sends out a plurality of reference lights together with the WDM light, the reference lights having wavelengths at which permit respective Raman gains obtained by said plurality of pumping lights reach peaks, or wavelengths close to said first wavelengths, and said control means controls said plurality of pumping lights based on the optical powers of said plurality of reference lights."

Sobe et al. ("Sobe" hereinafter) discloses a method and apparatus for measuring Raman gain, a method and apparatus for controlling Raman gain, and a Raman amplifier. In FIG. 9, Sobe describes transmitting a pump light outputted from a pump light source 30 to an amplification medium 10, so as to Raman-amplify a WDM light; demultiplexing a portion of the Raman-amplified light by a TAP coupler 61-1, after removing a returned light of the pump light included in the demultiplexed light by WDM coupler 62-2 and optical termination unit 63; demultiplexing the light which passes through the WDM coupler 62-2 in two by a TAP coupler

61-2 to monitor a monitored light power and a signal light inclination; and controlling the pump light based on the result of the monitoring (see paragraphs [0240]-[0246]).

However, Sobe merely monitors *the signal light* which is Raman-amplified, to feedback control the pump light. By contrast, the present invention (see claim 2) transmits a plurality of reference lights (fr1 to fr3) having such wavelengths, which permit the respective Raman gains obtained by the corresponding pumping lights (fp1 to fp3) to reach peaks or wavelengths close to the wavelengths of the pump lights. The plurality of reference lights (fr1 to fr3) is transmitted from a transmission station (110) together with WDM signal lights (fs1 to fsn). Each of the pumping lights is controlled based on the light powers of the plurality of the reference lights (fr1 to fr3), and *the plurality of the reference lights which are different from main signal lights (fs1-fsn)* are used to control a pumping light source (102). According to the above, the present invention clearly distinguishes over the disclosure of Sobe.

It is further noted that Sobe discloses that the pump light is controlled by using the main signal light and thus, the control must rely on the number or arrangement of the signal light which is included in the WDM light. By contrast, as explained in the last paragraph on page 18 and ending on page 19 of the Applicant's specification, even in the case in which the number of signal lights contained in the WDM light is less or the case in which the arrangement of signal lights contained in the WDM light are biased, the suitable Raman amplification can be acquired. Moreover, it is possible to acquire a desired level of gain over the entire signal band.

Claims 3, 14, 15, and 16 recite patentably distinguishing features similar to those recited in claim 2. For example, claim 3 recites, "said transmission station sends out a plurality of reference lights together with the WDM light, the reference lights corresponding to said plurality of pumping lights at second frequencies shifted by a Raman shift frequency or at frequencies close to said first frequencies, and said control means controls said plurality of pumping lights based on the optical powers of said plurality of reference lights."

Claim 14 recites, "reference light generating means for generating a plurality of reference lights having wavelengths which permit respective Raman gains obtained by said plurality of pumping lights to reach peaks or wavelengths close to said first wavelengths, and sending out the reference lights together with the WDM light, and said control means controls said plurality of pumping lights based on the respective optical powers of said plurality of reference lights."

Claim 15 recites, "control means for controlling said plurality of pumping lights based on the respective optical powers of said plurality of reference lights, and said plurality of reference lights is arranged to have second wavelengths which permit respective Raman gains obtained by said plurality of pumping lights to reach peaks or wavelengths close to said first wavelengths."

Claim 16 recites, "wherein said transmission station sends out a plurality of reference lights together with the WDM light, the reference lights having second wavelengths which permit respective Raman gains obtained by said plurality of pumping lights to reach peaks or wavelengths close to said first wavelengths, as a part of said WDM light, and said Raman amplifier controls said plurality of pumping lights based on the respective optical powers of said plurality of reference lights."

Therefore, claims 3, 14, 15, and 16 also distinguishes over the cited prior for the same reasons as claim 2.

Claims 4-11 depending either from independent claims 2 or 3 patentably distinguishes over the cited prior art for at least the same reasons as claims 2 and 3.

In view of the above, it is respectfully submitted that the rejection is overcome.

IV. NEW CLAIMS

New claims 43 and 44 recite similar features as those recited in independent claims 2 and 3, respectively. For example, claim 43 recites, "wherein said transmission station sends out a plurality of reference lights together with the WDM light, the reference lights having second wavelengths which permit respective Raman gains obtained by said plurality of pumping lights to reach peaks or wavelengths close to said first wavelengths, and said Raman amplifier controls said plurality of pumping lights based on the optical powers of said plurality of reference lights."

Claim 44 recites, "said transmission station sends out a plurality of reference lights together with the WDM light, the reference lights corresponding to said plurality of pumping lights at second frequencies shifted by a Raman shift frequency or at frequencies close to said first frequencies, and said control means controls said plurality of pumping lights based on the optical powers of said plurality of reference lights." Therefore, claims 43 and 44 distinguish over the cited prior art for the same reasons as claims 2 and 3.

In view of the above, it is respectfully submitted that claims 43 and 44 patentably distinguish over the cited prior art.

V. CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that each of the claims patentably distinguishes over the prior art, and therefore defines allowable subject matter. A prompt and favorable reconsideration of the rejection along with an indication of allowability of all pending claims are therefore respectfully requested.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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